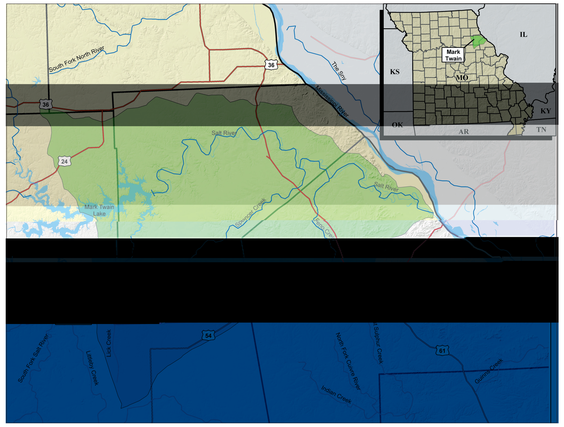
United States Department of Agriculture

Conservation Effects Assessment Project (CEAP)

Salt River/Mark Twain Watershed, Missouri: 2004-2009

An ARS* Benchmark Research Watershed, one of 24 CEAP watershed projects.



CEAP Assessment

Evaluate water and soil quality effects of best management practices (BMPs) for herbicide, nutrient, and sediment contamination.

Watershed Description

- 1,611,500 acres (Salt River Basin)
- Predominantly agricultural
- A Total Maximum Daily Load (TMDL) has been set for allowable levels of sediment.
- Watershed is a participant in the Clean Water Act Section 319 Nonpoint Source Pollution Program.

Issues: Runoff from farms, growing beef and swine feedlots, carries excess nutrients, pathogens, sediment, and herbicides to Mark Twain Lake. Mark Twain Lake is the drinking water reservoir for about 40,000 people.

*Agricultural Research Service

Approach

Water sampling: Pesticides, phosphorus, nitrate-nitrogen, sediment, and pathogens from livestock manure

Watershed models: SWAT (Soil and Water Assessment Tool)

Research: Effectiveness, economics of various BMPs and weed management methods.

Communicating Results

Three annual progress reports planned. Also, new or re-designed BMPs, decision support system based on SWAT data, recommendations by crop for entire Salt River basin, and journal articles.

Aerial photograph of Mark Twain Lake watershed, showing riparian corridors, grassed waterways, and the within-field spatial variation that is common to the area.

Collaborators

- USDA, Natural Resources Conservation Service
- Food and Agricultural Policy Research Institute
- Environmental Resources Coalition
- Missouri Corn Growers Association

Student summer intern confirms programming of a sampler that collects runoff from a 65' x 660' plot to test nutrient and herbicide loss from conventional and reduced-tillage cropping systems for corn.

Contacts

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Runoff from 80-acre field watershed after storm. The weir allows calculation of flow rate from height measurements, and samplers nearby collect samples for nutrient and herbicide analyses.